

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figs. 1A, 1B and 2. This sheet, which includes Figs. 1A, 1B and 2, replaces the original sheet including Figs. 1A, 1B and 2.

Attachments: Replacement Sheet for Figs. 1A, 1B and 2

Annotated Sheet Showing Changes to Figs. 1A, 1B and 2

REMARKS

This paper is submitted in reply to the Office Action dated April 20, 2005, within the three-month period for response. Reconsideration and allowance of all pending claims are respectfully requested.

In the subject Office Action, the drawings were objected to under 37 CFR 1.83(a). Furthermore, claims 17-27 were rejected under 35 U.S.C. § 112 second paragraph. Moreover, claims 1 and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0120537 to Takei (Takei). In addition, claims 1, 3-4, 6-9, 17-18, 20, 22-24, 26 and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,167,140 to Watanabe (Watanabe) in view of U.S. Patent No. 6,760,448 to Gundry (Gundry); claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view of Gundry and further in view of U.S. Patent No. 6,442,278 to Vaudrey et al. (Vaudrey); claims 10-16, 19, 25 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe in view Gundry and further in view of U.S. Patent No. 6,766,028 to Dickens (Dickens); and claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,167,140 to Watanabe in view of Gundry and further in view of Takei.

Applicants respectfully traverse the Examiner's rejections and assertions to the extent that they are maintained. Applicants have nonetheless amended the drawings and claims 1, 5-9 and 17-28 in deference to the Examiner and to further the case onto allowance. Applicants respectfully submit that no new matter is being added by the above amendments, as the amendments are fully supported in the specification, drawings and claims as originally filed.

Embodiments of Applicants' invention regard a specific sequence of audio post processing algorithms. The actual post processes used in the sequence are already known in the art. What is new is the way in which the Applicants have interacted and arranged these post processes to achieve superior sound quality. Applicants have now sequenced

these post processes in a manner that substantially reduces clipping, choppy and tinny audio distortions that plague prior art audio systems.

None of the cited prior art discloses or suggests the claimed sequence of post processes. In fact, the primary references, even in combination, fail to contemplate all of the post processes included in the specific sequence, let alone teach or suggest the sequence. For instance, the references fail to disclose or suggest transmitting an ambient noise containing channel (using VES/DCS techniques), and directing a low frequency input channel in accordance with the respectively claimed enhanced surround sound and base management features. Even if they did, however, the references would still not teach or suggest the claimed, specific sequence.

Next turning specifically to the rejection of independent claim 1, this claim recites an audio post processing method that includes the sequenced steps of matrix mixing an audio signal, then decoding a surround channel of the audio signal, then directing a low frequency input channel of the audio signal to a low frequency effect compatible speaker, transmitting an ambient noise containing channel of the audio signal to a speaker system operable to create a three dimensional effect, then center channel equalizing the audio signal.

Takei does not teach the specific sequence claimed by Applicants. Moreover, Takei does not teach base management or enhanced surround sound techniques recited in claim 1 (i.e., directing a low frequency input channel of the audio signal to a low frequency effect compatible speaker and transmitting an ambient noise containing channel of the audio signal to a speaker system operable to create a three dimensional effect). The reason for Takei's failure to teach such features speaks to its disparate purpose. Takei is rather concerned with boosting middle and low frequency components of the center channel signal in stereo signals (paragraph [0015]). Because Takei fails to teach the claimed sequence of post processes, and even several of the claimed post processes, themselves, independent claim 1 is novel and non-obvious over Takei.

Similarly, any combination of Watanabe with Gundry fails to suggest the specific sequence of post processes recited in claim 1. In fact, both references fail to contemplate (in any sequence) enhanced surround sound features embodied in claim 1 (i.e., transmitting an ambient noise containing channel of the audio signal to a speaker system operable to create a three dimensional effect).

Notwithstanding the absence of one of the claimed post processing features, however, the cited combination still fails to suggest or motivate the specific sequence laid out in claim 1. This failure to suggest such a sequence is in part attributable to the different purposes and processes of the cited references. For instance, Watanabe is directed to an amplifier capable of accommodating by wiring speakers that are driven in two-channel stereo (column 1, lines 52-55 and lines 66-67). Gundry is directed to a manner for providing compatibility with conventional two surround channel playback and standard 5.1 channel and 7.1 channel systems (column 9, lines 53-59). Neither of these references addresses the compounding effects and interactions of multiple post processes.

Applicants consequently and respectfully submit that the prior art cited by the Examiner fails to disclose or suggest the sequence and other features included in claim 1. Independent claim 1 is therefore novel and non-obvious over the prior art of record. Reconsideration and allowance of independent claim 1, as well as of claims 2-16 that depend therefrom, are therefore respectfully requested.

Next turning specifically to the rejection of independent claim 17, this claim generally recites an audio post processing system that includes at least one decoder operable to perform the sequenced steps of matrix mixing an audio signal, then decoding a surround channel of the audio signal, then directing a low frequency input channel of the signal to a low frequency effect compatible speaker, transmitting an ambient noise containing channel of the signal to a speaker system operable to create a three dimensional effect, then center channel equalizing the input signal. Thus, the claim comprises many of the same sequence of post processes discussed in connection with

claim 1. As such, claim 17 is novel and non-obvious for at least the reasons discussed above in connection with claim 1. Claim 17 furthermore recites additional features that include a player console operable to receive system listener input and a signal source producing a signal comprised of a plurality of channels, each channel operable to drive a loudspeaker positioned at one or more of a plurality of destinations.

Applicants respectfully submit that independent claim 17 is novel and non-obvious over the prior art of record for at least the same reasons discussed above in connection with claim 1. Reconsideration and allowance of independent claim 17, as well as of claims 18-27 that depend therefrom, are therefore respectfully requested.

Next with respect to the rejection of independent claim 28, this claim generally recites an audio post processing system that includes many of the distinguishing features of claim 17, in addition to a headphone algorithm. Again, the prior art does not suggest the recited sequence that dramatically reduces distortion in that plagues conventional audio systems, as discussed above in connection with the preceding independent claims. Claim 28 is therefore novel and non-obvious over the prior art of record. Reconsideration and allowance of independent claim 28 are therefore respectfully requested.

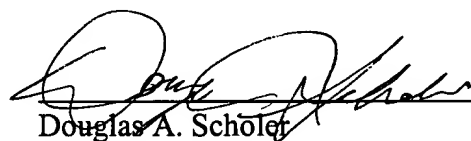
Finally with respect to the rejection of independent claim 29, this claim includes a sequence of method steps similar to those recited in claim 1. Claim 29 is therefore novel and non-obvious for reasons similar to those discussed in connection with claim 1. More particularly, the prior art does not suggest the claimed sequence. For instance, the references fail to suggest "wherein directing the low frequency input channel always precedes transmitting the ambient noise containing channel, and center channel equalizing the signal; and wherein transmitting the ambient noise containing channel always precedes center channel equalizing the signal." The references even fail to disclose the steps of "directing a low frequency input channel of the signal to a low frequency effect compatible speaker, and transmitting an ambient noise containing channel of the signal to a speaker system operable to create a three dimensional effect,"

both of which comprise part of the sequence. Applicants respectfully submit that independent claim 29 is therefore also novel and non-obvious over the prior art of record. Reconsideration and allowance of independent claim 29 are therefore respectfully requested.

In summary, Applicants respectfully submit that all pending claims are novel and non-obvious over the prior art of record. Reconsideration and allowance of all pending claims are therefore respectfully requested. If the Examiner has any questions regarding the foregoing, or which might otherwise further this case onto allowance, the Examiner may contact the undersigned at (513) 241-2324. Moreover, if any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

7/20/05
Date



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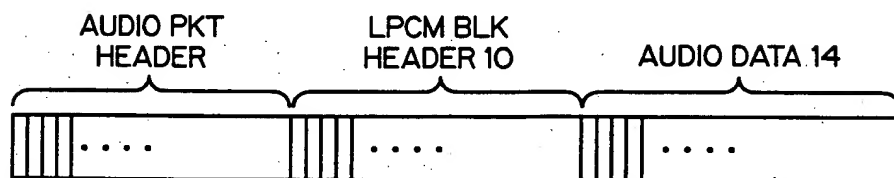


FIG. 1A

PRIOR ART

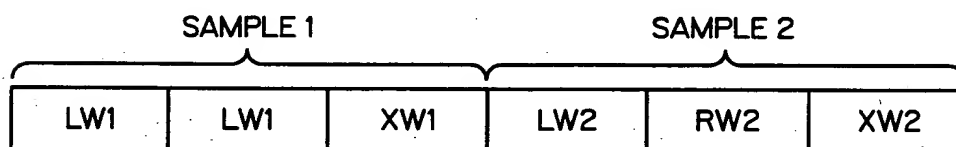


FIG. 1B

PRIOR ART

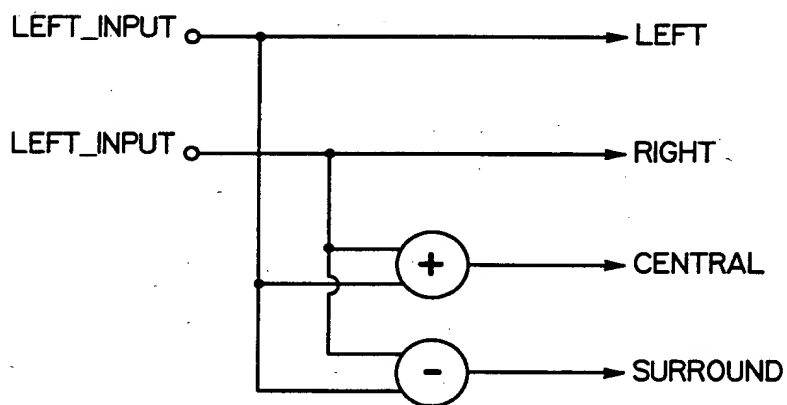


FIG. 2

PRIOR ART